Patent claims

1. Compound of the formula

in which

5 A represents a radical

$$\mathbb{R}^7$$
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7
 \mathbb{R}^7

in which,

 R^7 represents hydrogen, halogen, cyano, (C_1-C_6) -alkyl, (C_3-C_6) -cycloalkyl, phenyl or 5- or 6-membered heteroaryl,

where alkyl, cycloalkyl, phenyl or 5- or 6-membered heteroaryl may be substituted by amino, hydroxyl, halogen, (C_1-C_3) -alkyl, (C_1-C_3) -alkoxy or (C_1-C_6) -alkylamino,

and

* represents the point of attachment to Y,

15 Y represents O or NH,

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 R^1 and R^2 independently of one another represent hydrogen, halogen, cyano or (C_1-C_3) -alkyl,

R³ and R⁴ independently of one another represent hydrogen, fluorine, chlorine or methyl,

R⁵ represents hydrogen or (C₁-C₆)-alkyl,

R⁶ represents a radical selected from the group consisting of:

 (C_1-C_6) -alkyl which is substituted by amino, hydroxyl, (C_1-C_6) -alkoxy, (C_1-C_6) -alkylthio, (C_1-C_6) -alkylamino, (C_3-C_8) -cycloalkylamino, (C_1-C_6) -alkylamino, (C_3-C_8) -cycloalkyl, (C_6-C_{10}) -aryl, 5- to 10-membered heteroaryl or 5- to 10-membered heterocyclyl,

where alkylamino, cycloalkylamino or aryl for their part may be substituted by amino, hydroxyl, halogen, (C_1-C_6) -alkoxy, (C_1-C_6) -alkylamino or (C_6-C_{10}) -aryl,

 (C_1-C_6) -alkoxy which may be substituted by amino, hydroxyl or (C_1-C_6) -alkylamino,

dimethylaminoethylamino,

(C₃-C₈)-cycloalkyl, 5- to 10-membered heterocyclyl or 5- to 10-membered heterocyclyloxy,

where cycloalkyl, heterocyclyl or heterocyclyloxy may be substituted by amino, hydroxyl, (C_1-C_6) -alkyl, (C_1-C_6) -alkylamino, oxo or benzyloxy,

and (C₆-C₁₀)-aryl or 5- to 10-membered heteroaryl,

where aryl or heteroaryl may be substituted by amino, hydroxyl, halogen, cyano, (C_1-C_6) -alkyl, which for its part may be substituted by amino or (C_1-C_6) -alkylamino, (C_1-C_6) -alkoxy, (C_1-C_6) -alkylamino or (C_1-C_6) -alkoxycarbonyl,

and its salts, hydrates, hydrates of the salts and solvates.

2. Compound of the formula (I) according to Claim 1,

in which

A represents a radical

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in which

R⁷ represents hydrogen, chlorine or methyl,

and

* represents the point of attachment to Y,

5 Y represents O,

R¹ and R² independently of one another represent hydrogen, fluorine or chlorine,

R³ and R⁴ independently of one another represent hydrogen or fluorine,

R⁵ represents hydrogen,

R⁶ represents a radical selected from the group consisting of:

(C₁-C₆)-alkyl which is substituted by amino, hydroxyl, (C₁-C₆)-alkoxy, (C₁-C₆)-alkylthio, (C₁-C₆)-alkylamino, (C₅-C₆)-cycloalkylamino, (C₁-C₆)-alkylcarbonylamino, (C₁-C₆)-alkoxycarbonyl, phenyl, 5- or 6-membered heterocyclyl,

where alkylamino, cycloalkylamino or phenyl for their part may be substituted by hydroxyl, halogen, (C_1-C_3) -alkoxy, (C_1-C_3) -alkylamino or phenyl,

(C₁-C₆)-alkoxy which may be substituted by amino or (C₁-C₆)-alkylamino,

cyclopentyl, cyclohexyl, 5- or 6-membered heterocyclyl or 5- or 6-membered heterocyclyloxy,

where cyclopentyl, cyclohexyl, heterocyclyl or heterocyclyloxy may be substituted by amino, hydroxyl, (C_1-C_3) -alkyl, oxo or benzyloxy,

and phenyl, thienyl, furyl, pyrrolyl, pyrazolyl, thiazolyl, oxazolyl, imidazolyl, pyridyl, pyrimidyl or pyridazinyl,

where phenyl, thienyl, furyl, pyrrolyl, pyrazolyl, thiazolyl, oxazolyl, imidazolyl, pyridyl, pyrimidyl or pyridazinyl may be substituted by amino, hydroxyl, halogen, cyano, (C_1-C_3) -alkyl, which for its part may be substituted by amino or (C_1-C_6) -alkylamino, (C_1-C_3) -alkoxy or (C_1-C_3) -

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alkoxycarbonyl,

and its salts, hydrates, hydrates of the salts and solvates.

3. Compound of the formula (I) according to Claim 1,

in which

5 A represents a radical

in which

R⁷ represents hydrogen, chlorine or methyl

and

* represents the point of attachment to Y,

Y represents O,

R1 and R2 independently of one another represent hydrogen or fluorine,

R³ and R⁴ represent hydrogen,

R⁵ represents hydrogen,

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15 R⁶ represents a radical selected from the group consisting of:

(C₁-C₆)-alkyl which is substituted by amino, hydroxyl, (C₁-C₆)-alkylamino, cyclohexylamino or piperidinyl,

where alkylamino or cyclohexylamino for their part may be substituted by hydroxyl or phenyl,

(C₁-C₆)-alkoxy which may be substituted by amino or (C₁-C₆)-alkylamino,

cyclopentyl, piperazinyl, piperidinyl, pyrrolidinyl, piperidinyloxy or

pyrrolidinyloxy,

where cyclopentyl, piperazinyl, piperidinyl, pyrrolidinyl, piperidinyloxy or pyrrolidinyloxy may be substituted by amino, hydroxyl, (C₁-C₃)-alkyl or benzyloxy,

5 and phenyl or thienyl,

where phenyl or thienyl may be substituted by (C_1-C_3) -alkyl which for its part may be substituted by amino or (C_1-C_6) -alkylamino,

and its salts, hydrates, hydrates of the salts and solvates.

- 4. Process for preparing compounds of the formula (I) as defined in Claim 1, characterized in that either
 - [A] compounds of the formula

in which

A, Y, R¹, R², R³, R⁴ and R⁵ are as defined in Claim 1

are reacted with compounds of the formula

$$X^1$$
 R^6 (III) or X^1 R^{6a} (IIIa),

in which

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R⁶ is as defined in Claim 1,

R^{6a} corresponds to a radical R⁶ as defined above which, however, contains, instead of a secondary or tertiary amino group, a chlorine substituent or, instead of a free amino group, a nitro group or a protected amino group,

and

X¹ represents halogen, preferably chlorine or bromine, or hydroxyl,

and, in the case of the reaction with compounds (IIIa) in the radical R^{6a}, the chlorine substituent is subsequently substituted by an amine, the nitro group is hydrogenated to give the corresponding amino group or the protective group is cleaved off to release the corresponding free amino group

or

[B] compounds of the formula

$$A \xrightarrow{P} R^{1}$$

$$R^{2} \xrightarrow{R^{3}} N$$

$$R^{5} \qquad (IV),$$

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in which

A, Y, R¹, R², R³, R⁴ and R⁵ are as defined in Claim 1

are reacted with compounds of the formula

$$H_2N-R^8$$
 (V)

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in which

R⁸ is as defined in Claim 1.

- 5. Compound as defined in any of Claims 1 to 3 for the treatment and/or prophylaxis of disorders.
- 6. Use of a compound as defined in any of Claims 1 to 3 for preparing medicaments for the treatment and/or prophylaxis of cardiovascular disorders.
 - 7. Use of a compound as defined in any of Claims 1 to 3 for preparing medicaments for the

treatment and/or prophylaxis of erectile dysfunction.

- 8. Method for the treatment and/or prophylaxis of cardiovascular disorders comprising the use of a cardiovascularly effective amount of a compound as defined in any of Claims 1 to 3.
- 5 9. Medicament comprising a compound as defined in any of Claims 1 to 3 in combination with a further active compound.
 - 10. Medicament comprising a compound as defined in any of Claims 1 to 3 in combination with an inert non-toxic pharmaceutically suitable auxiliary.
- 11. Medicament according to Claim 9 or 10 for the treatment and/or prophylaxis of cardiovascular disorders.
 - 12. Medicament according to Claim 9 or 10 for the treatment and/or prophylaxis of erectile dysfunction.